Appendix N: Instructions for FGTS Truck Tonnage Estimation

FGTS Classes

For the current update, the FGTS classes are:

T-1   Over 10 million gross tons annually

T-2   4 to 10 million gross tons annually

T-3   300,000 to 4 million gross tons annually

T-4   100,000 to 300,000 gross tons annually

T-5   Over 20,000 gross tons in 60 days

Truck Classifications and Definitions

This includes all commercial trucks, two-axle (four tires) or larger. It does not include private pickups, vans, or recreational vehicles. To aid in calculating annual tonnage, trucks are divided into three categories:

Single units – a single vehicle including dump trucks, mixers, regardless of the number of axles.

Double units – a two-unit vehicle, normally a truck and trailer, generally from 4-axle to 6-axle. This category basically includes any truck up to 80,000 pounds. Older double trailers (Consolidated Freightways, Viking, etc.) can also be included in this category.

Trains – normally a tractor and two trailers. Almost any truck rated from 80,000 pounds to 105,000 pounds. Gasoline tankers, the 8-axle truck and trailer type, should be included in this category.

In calculating the approximate freight tonnage, the following average weights may be used:

Singles   7 tons

Doubles 27 tons

Trains   42 tons

Calculation Examples

For an example of the tonnage calculation we will assume that a person counts traffic for four hours and records the following:

Vehicle Type	Count by Type	Percent of Trucks
Single trucks	79	55%
Double trucks	60	42%
Trains	5	3%
Cars	600	
Total	744 (144 = trucks)	

The next item needed is the average daily traffic and truck traffic as a percentage of the total volume. This must be obtained from the best source available, whether actual counts or modeled estimates. For the purposes of this example, let's say that the ADT is accurately known to be 2,400 vehicles per day, with 18 percent trucks.

The calculation of tonnage is then:

{ADT * percent of ADT that are trucks * percent of trucks that are singles * average gross weight for singles * 250 working days per year}

+ {ADT * percent of total trucks * percent of trucks that are doubles * average gross weight for doubles * 250 working days per year}

+ {ADT * percent of total trucks * percent of trucks that are trains * average gross weight for trains * 250 working days per year}

= freight in tons per year.

or, for the example above:

(2400 * 0.18 * 0.55 * 7 * 250}

+ (2400 * 0.18 * 0.42 * 27 * 250}

+ (2400 * 0.18 * 0.03 * 42 * 250}

= 1,776,600 tons per year, or a T-3 class roadway or street.

Using the above example, if the ADT is not reliably known then an approximation of the truck volumes would be the 4-hour count multiplied by 3; this "12-hour" method is less accurate, but it is quick and provides a reasonable estimate:

   (79 * 3 * 7 * 250}

+ (60 * 3 * 27 * 250}

+ (5 * 3 * 42 * 250}

= 1,787,250 tons per year, or a T-3 class of roadway or street.

If the truck type distribution is not known, then a different method of calculation can be made using an average weight of 17 tons per truck.

ADT * Percent trucks * average truck weight * working days in a year

= freight tonnage;

or

2400 * 0.18 * 17 * 250

= 1,836,000 tons per year, or a T-3 class of roadway or street.

The Freight and Goods Transportation System update can be reliably done using any of the three methods.